

### REMARKS

In the Official Action the Examiner allowed Claims 1-13 and 17. Claims 14-16 were rejected under 35 U.S.C. § 112 as being indefinite. Claim 18 was objected to due to a typographic error.

Applicant has amended Claims 14 and 18 to address the basis for rejection and objection, respectively, raised by the Examiner. Specifically, the Examiner considered the term “just beneath” to render the claim indefinite in that it could not be determined how far beneath the diverter retaining projection the diverter plate may lie while still being “just beneath”. Claims 15 and 16 were rejected as being indefinite since they are dependent upon Claim 14.

Applicant has amended Claim 14 by deleting the word “just” from line 6 of that claim. As illustrated in Fig. 8, and as described in the Specification at page 16, lines 5-13, the diverter plate 36a, best illustrated in Fig. 5, lies below the inwardly projecting diverter engaging ring 143 at the groove 145. By deleting the word “just” it is believed that any indefiniteness in Claim 14 has now been corrected. With this correction Claims 15 and 16 are likewise corrected.

Claim 18 was objected to in that the letter “a” before the numeral “13” was a typographical error. Applicant has amended Claim 18 to delete that word, and thereby correct this typographical error.

The Examiner also objected to the disclosure of the Specification as failing to refer to drawing numerals 14a, 20a, and 22a, which appear in the drawings. Applicant has amended the Specification at page 14, lines 4-6 to correct this error. The reference

numbers 14a, 20a, and 22a now refer to the corresponding parts of the battery cap 12a that appear in the prior art battery cap 12 and which are described in the Specification at page 12, lines 9 and 16-18. As set forth at page 5, lines 4-6 of U.S. Application Serial No. 08/978,693 filed November 26, 1997, now abandoned, upon which the present application claims priority, the same elements and features in the various drawing figures are given the same reference numbers as those originally given with respect to the prior art device, but with the letter "a" following. A copy of page 5 of U.S. Application Serial No. 08/978,693 is enclosed herewith for the convenience of the Examiner.

The Examiner also objected to certain inconsistencies in the drawings. Specifically, as the Examiner correctly observed, the reference numeral 100 is used to indicate two different items in Fig. 5. Accordingly, a substitute sheet of drawings, including Fig. 5, is presented herewith. In the substitute sheet the reference number "100" directed to the flame arrester disc has been changed to the reference number "102" so that it is now consistent with the Specification.

Likewise, the Examiner indicated that Fig. 1 illustrated conventional battery caps, and thus should be labeled "prior art", like Fig. 3. Accordingly, Applicant presents herewith a substitute sheet of drawing Figs. 1-3 in which this correction has been made.

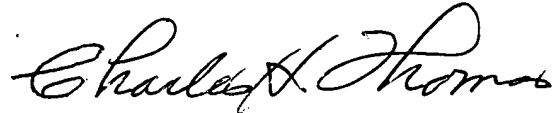
In reviewing the Specification Applicant also noted a typographical error that appears at page 12, line 9. That is, the word "of" should not appear between the word "portion" and the reference numeral "14". Accordingly, page 12 has been corrected as indicated in the marked-up copy of that page presented herewith.

It is believed that all of the objections and rejection of claims have been properly addressed

as required by the Examiner. Accordingly, Applicant believes that the present application is now in a condition for allowance and therefore requests allowance of all claims and passage of the application to issue in due course.

Date: April 7, 2003

Respectfully submitted,

A handwritten signature in cursive script, reading "Charles H. Thomas".

Charles H. Thomas  
Registration No. 25,710

Charles H. Thomas  
CISLO & THOMAS LLP  
Suite 405  
4201 Long Beach Blvd.  
Long Beach, CA 90807-2022  
562- 595-8422 (ph)  
562-595-9319 (fax)  
[cthomas@cislo.com](mailto:cthomas@cislo.com) (e-mail)



## DESCRIPTION OF THE EMBODIMENT

Fig. 1 illustrates a conventional, heavy duty, deep cycle lead-acid electrical storage battery 10 of the type utilized in vehicles powered solely by battery power.

For example, a deep cycle battery 10 may be utilized to power a golf cart, a warehouse forklift, a wheelchair or some other mobile vehicle operated solely by battery power.

The battery 10 illustrated has six cells, each of which has a fill opening that is closed by a conventional battery cap 12. A single one of the battery caps 12 is illustrated in detail in Figs. 2 and 3. The battery cap 12 is formed of stiff plastic that defines an upper portion 14 and a lower portion 16. Four wings or vanes 18 spaced 90 degrees apart project radially from the otherwise cylindrical body of the upper portion 14. The wings or vanes 18 enable a user to grasp the cap 12 and twist it counterclockwise to remove it from the fill opening of a battery or clockwise to reattach it into a fill opening in the battery 10. The lower portion 16 of the battery cap 12 is configured with radially projecting inclined planes that engage corresponding recesses in a fill opening of the battery 10.

An annular, radially projecting flange 20 is formed around the cap 12 at the delineation between the upper and lower portions 14 and 16. A gasket 22 is located under the flange 20. The gasket 22 forms a tight seal against the structure of the battery 10 when the cap 12 is tightly installed in a fill opening in the battery 10.

The interior of the battery cap 12 is illustrated in Fig. 3. As shown, the battery

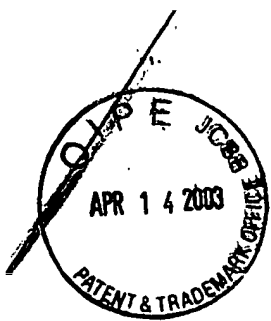


mouth opening 134. The tubular body 100 is formed with a generally cylindrical, tubular annular wall 122 that defines a vertical axis of longitudinal alignment 125. The tubular annular wall 122 has an interior surface 130 and an exterior surface 132.

The wall 122 also has external radial projections 16a<sup>1</sup> for engaging a battery fill port in a conventional manner. <sup>beneath a radial flange 20a</sup>  
<sup>A gasket 22a is located beneath the flange 20a</sup>  
The projections 16a are shaped like and operate like the projections 16 of the conventional battery cap 12. The upper portion of the tubular body 100 also includes four radially projecting wings 18a that facilitate gripping and twisting the battery cap 12a with one's fingers to install or remove the battery cap 12a from a battery cell fill opening. This feature is also conventional.

The internal structure of the battery cap 12a is quite unique and is best illustrated in drawing Figs. 5 through 8. As shown in those drawing figures an inwardly projecting radial, annular rib 128 is defined on the inner surface of the wall 122. The rib 128 extends radially inwardly a distance of 0.025 inches encircling the interior 130 of the wall 122 at the upper end 106 of the tubular body 100 near the upper extremity thereof. Also in the upper end 106 of the tubular body 100, but below the annular rib 128, there are a pair of gas escape ports 42a defined through the structure of the wall 122. The gas escape ports 42a are each 0.12 inches in diameter and are spaced laterally from each other a distance of 0.35 inches, center to center.

The tubular body 100 defines an annular, transverse floor 136 that extends radially inwardly from the wall 122 at the lower end 107 of the tubular body 100. As



U.S.S.N. 08/978,693

lower regions of the cap; and

FIG. 7 is a transverse cross sectional drawing looking along line 7-7 of FIG. 5, showing construction of initial deflector plate.

In the various FIGS., the same elements and features are given the same reference numbers and similar elements and features are given the same reference numbers as those originally given, but with the letter "a" following.

**RECEIVED**

**APR 16 2003**

**TC 1700**

DESCRIPTION OF THE PREFERRED EMBODIMENT:

Prior Art of FIGS. 1-3:

There is shown in perspective in FIG. 1 a conventional, heavy-duty, direct current (DC) battery 10 of the type often used in floor sweepers, golf carts, electric powered vehicles, large boats and heavy construction equipment, such as road graders, earth movers, skip loaders back hoes and the like. Installed onto battery 10 are a plurality of conventional battery caps 12, only two of which are shown by way of example.

A representative one of conventional battery caps 12 is shown in FIG. 2, and comprises an upper portion 14 and a lower portion 16. Upper portion 14 of cap 12 includes a number-four being shown-of protruding wings or vanes 18 which enable the grasping of cap 12 for removing the cap from or reattaching the cap onto, battery 10. Lower portion 16 of cap is configured for enabling cap 12 to be detachably attached to battery 10.

A flange 20 (FIGS 1 and 2) formed around cap 12 between upper and lower portions 14 and 16 enables the cap to be tightened down onto battery 10, A gasket 22 under flange forms a seal when the cap is tightly installed onto battery 10.

Internally, as depicted in FIG. 3, battery cap 12 comprises a cylindrical chamber or cavity 30 which is open at the bottom. Depending from an upper, inner surface 32 of chamber 30 is a baffle 34 which extends across the chamber and nearly to the bottom thereof. Installed at the lower, open end of chamber 20 is a diverter plate 36.